HEPATITIS A - ACUTE

DISEASE REPORTING

In Washington

The incidence of hepatitis A in Washington has been decreasing since the late 1990s; DOH receives approximately 300 to 500 reports of acute hepatitis A virus (HAV) infections per year, and the incidence has fallen from 18/100,000 in 1996 to 5/100,000 in 2000. There is typically one fatality/year associated with fulminant hepatitis A.

Exposures identified in Washington include contact with a case in a household or day care center, sexual practices, injection and noninjection drug use (especially methamphetamine), travel to an endemic area, and contaminated food and water.

Prophylaxis with immune globulin is recommended for patrons of a food service establishment where a food handler is diagnosed with hepatitis A only if all of the following conditions exist:

- The case was directly involved in handling, without gloves, foods that will not be cooked before they are eaten and
- The hygienic practices of the food handler are inadequate or the food handler worked while infectious and
- Patrons can be notified and treated within 14 days of exposure.

Purpose of reporting and surveillance

- To identify sources of transmission (e.g., a commercial product or public water supply) and to prevent further transmission from such sources.
- When the source is a risk for only a few individuals (e.g., household contacts), to inform those individuals how they can reduce their risk of exposure.
- To identify cases that may be a source of infection for others (e.g., a food handler) and to prevent further disease transmission.
- To educate potentially exposed persons about signs and symptoms of disease, thereby facilitating early diagnosis.
- To identify contacts and recommend appropriate preventive measures, including immune globulin and immunization.

Reporting requirements

- Health care providers: **immediately notifiable to Local Health Jurisdiction**
- Hospitals: **immediately notifiable to Local Health Jurisdiction**
- Laboratories: notifiable to Local Health Jurisdiction within 2 workdays

- Local health jurisdictions: notifiable to DOH Communicable Disease Epidemiology within 7 days of case investigation completion or summary information required within 21 days

CASE DEFINITION FOR SURVEILLANCE

Clinical criteria for diagnosis

An illness with a) discrete onset of symptoms (e.g., fatigue, abdominal pain, loss of appetite, nausea, vomiting) and, b) jaundice or elevated serum aminotransferase levels.

Laboratory criteria for diagnosis

- Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive.

Case definition

- Confirmed: A case that meets the clinical case definition and is laboratory confirmed, or a case that meets the clinical case definition and is a contact of a person with a laboratory confirmed case.

A. DESCRIPTION

1. Identification

Onset of illness in adults in nonendemic areas is usually abrupt with fever, malaise, anorexia, nausea and abdominal discomfort, followed within a few days by jaundice. In most developing countries, infection occurs in childhood asymptomatically or with a mild illness. These latter infections may be detectable only through laboratory tests of liver function. The disease varies in clinical severity from a mild illness lasting 1-2 weeks to a severely disabling disease lasting several months. Prolonged, relapsing hepatitis for up to 1 year occurs in 15% of cases; no chronic infection is known to occur. Convalescence is often prolonged. In general, severity of illness increases with age, but complete recovery without sequelae or recurrences is the rule. Reported mortality ranges from 0.1%-0.3%; however, mortality is elevated to 1.8% for adults over 50; persons with chronic liver disease have an elevated risk of death from fulminant hepatitis A. Generally, hepatitis A is considered a disease with a relatively low case-fatality rate.

Diagnosis is established by the demonstration of IgM antibodies against hepatitis A virus (IgM anti-HAV) in the serum of acutely ill or recently ill patients. IgM anti-HAV becomes detectable 5-10 days after exposure. Diagnosis may also be made by a fourfold or greater rise in specific antibodies in paired sera; antibody can be detected by RIA or ELISA. (Assay kits for the detection of IgM and total antibodies to the virus are available commercially.) If laboratory tests are not available, epidemiologic evidence may provide support for the diagnosis.

2. Infectious Agent

Hepatitis A virus (HAV), a 27-nm picornavirus (i.e., a positive-strand RNA virus). It has been classified as Hepatovirus, a member of the family Picornaviridae.

3. Worldwide Occurrence

Worldwide, sporadic and epidemic, with a tendency in the past to cyclic recurrences. In developing countries, adults are usually immune and epidemics of HA are uncommon. However, improved sanitation in many parts of the world is leaving many young adults susceptible, and the frequency of outbreaks is increasing. In developed countries, disease transmission is frequent among household and sexual contacts of acute cases, and also occurs sporadically in day care centers with diapered children, among travelers to countries where the disease is endemic, among injecting drug users and among men who have sex with men. Where environmental sanitation is poor, infection is common and occurs at an early age. In the US, 33% of the general population has serologic evidence of prior HAV infection.

Epidemics often evolve slowly in developed countries, involve wide geographic areas and last many months; common source epidemics may evolve rapidly. In the US, nationwide epidemic cycles have been observed with peaks in 1961, 1971 and 1989. During some outbreaks, day care center employees or attendees, men with multiple male sex partners and injecting drug users may be at higher risk than the general population. However, in close to half of cases, no source of infection is identified. The disease is most common among school aged children and young adults. In recent years, community wide outbreaks have accounted for most disease transmission, although common source outbreaks due to food contaminated by food handlers and contaminated produce continue to occur. Outbreaks have been reported among susceptible persons working with nonhuman primates raised in the wild.

4. Reservoir

Humans, rarely chimpanzees and certain other nonhuman primates.

5. Mode of Transmission

Person to person by the fecal-oral route. The infectious agent is found in feces, reaches peak levels the week or two before onset of symptoms and diminishes rapidly after liver dysfunction or symptoms appear, which is concurrent with the appearance of circulating antibodies to HAV.

Common source outbreaks have been related to contaminated water; food contaminated by infected food handlers, including foods that are not cooked or are handled after cooking; raw or undercooked mollusks harvested from contaminated waters; and contaminated produce such as lettuce and strawberries. A number of outbreaks in the US and Europe have been associated with injecting and noninjecting drug use. Although rare,

instances of transmission by transfusion of blood and clotting factor concentrates obtained from viremic donors during the incubation period have been reported.

6. Incubation period

Fifteen to 50 days, average 28-30 days.

7. Period of communicability

Studies of transmission in humans and epidemiologic evidence indicate that maximum infectivity occurs during the latter half of the incubation period and continues for a few days after onset of jaundice (or during peak aminotransferase activity in anicteric cases). Most cases are probably noninfectious after the first week of jaundice, although prolonged viral excretion (up to 6 months) has been documented in infants and children. Chronic shedding of HAV in feces does not occur.

8. Susceptibility and resistance

Susceptibility is general. Low incidence of manifest disease in infants and preschool children suggests that mild and anicteric infections are common. Homologous immunity after infection probably lasts for life.

B. METHODS OF CONTROL

1. Preventive measures:

a. Educate the public about good sanitation and personal hygiene, with special emphasis on careful handwashing and sanitary disposal of feces.
b. Provide proper water treatment and distribution systems and sewage disposal.
c. Two inactivated hepatitis A vaccines are now available in the US for preexposure immunization of persons 2 years of age and older. These vaccines have been shown to be safe, immunogenic and efficacious in clinical trials. Protection against clinical hepatitis A may begin in some persons as soon as 14-21 days after a single dose of vaccine, and nearly all have protective levels of antibody by 30 days after receiving the first dose of vaccine. A second dose is felt to be necessary for long term protection. The vaccines are not licensed in the US for persons less than 2 years old; the optimum dose and schedule to overcome interference with passively acquired maternal antibody has not been determined. Combination hepatitis A and hepatitis B vaccines are also now available in the US.
d. In the US, recommendations for the use of hepatitis A vaccine have been developed and include routine preexposure immunization of the following persons: a) persons at increased risk for HAV infection or its consequences (persons with chronic liver disease or clotting factor disorders, men who have sex with men, injecting drug users, persons traveling to countries where HAV is endemic, persons who work with

HAV infected primates or with HAV in research laboratory settings); b) children living in communities that have consistently elevated rates of hepatitis A.

e. Close personal contacts (e.g., household, sexual) of hepatitis A patients should be given postexposure prophylaxis with IG within 2 weeks of last exposure. If indicated, hepatitis A vaccine can be given simultaneously at a separate injection site. The efficacy of hepatitis A vaccine alone compared with IG for post exposure prophylaxis has not been determined.
f. Management of day care centers should stress measures to minimize the possibility of fecal-oral transmission, including thorough handwashing after every diaper change and before eating. If one or more hepatitis A cases are associated with a center, or if cases are recognized in two or more households of center attendees, IG should be administered to the staff and attendees. IG administration should be considered for family contacts of children in diapers attending centers where outbreaks occur and cases are recognized in three or more families. If indicated as part of a routine immunization or community wide outbreak control program, hepatitis A immunization of attendees and staff in the involved and also possibly uninvolved centers should also be considered.
g. All travelers to intermediate or highly endemic areas, including Africa, the Middle East, Asia, eastern Europe and Central and South America, should be given IG or hepatitis A vaccine prior to departure. Travelers can be assumed to be protected 4 weeks after receiving the initial vaccine dose. Hepatitis A vaccine is preferred for people who plan to travel repeatedly or reside for long periods in areas of intermediate or high endemicity of HAV infection. If IG is used, IG in a single dose of 0.02 ml/kg, or 2 ml for adults, is recommended for expected exposures of up to 3 months; for more prolonged exposures, 0.06 ml/kg or 5 ml should be given and repeated every 4-6 months if exposure continues.
h. Hepatitis A vaccine should be considered for other populations with increased risk of hepatitis A infection, such as men who have sex with men, injecting drug users and persons who work with HAV-infected primates or with HAV in a research laboratory setting.
i. Oysters, clams and other shellfish from contaminated areas should be heated to a temperature of 85-90ºC (185-194ºF) for 4 minutes or steamed for 90 seconds before eating.

2. Control of patient, contacts and the immediate environment:

a. Report to local health authority.
b. Isolation: For proven hepatitis A, enteric precautions during the first 2 weeks of illness, but no more than 1 week after onset of jaundice; the exception is an outbreak in the neonatal intensive care setting, where prolonged enteric precautions should be considered.
c. Concurrent disinfection: Sanitary disposal of feces, urine and blood.
d. Quarantine: None.
e. Immunization of contacts: Passive immunization with IG (IM), 0.02 ml/kg of body weight, should be given as soon as possible after exposure, but within 2 weeks. Because hepatitis A cannot be reliably diagnosed on clinical presentation alone,

serologic confirmation of HAV infection in index patients by IgM anti-HAV testing should be obtained before postexposure treatment of contacts. Persons who have received one dose of hepatitis A vaccine at least 1 month prior to exposure do not need IG.

IG is not indicated for contacts in the usual office, school or factory setting. IG should be administered to previously unimmunized persons in the situations listed below. If indicated, hepatitis A vaccine can be given concurrently at a separate injection site: a) close personal contacts, including household, sexual, drug using and other close personal contacts; b) day care centers if one or more cases of hepatitis A are recognized in children or employees or if cases are recognized in two or more households of center attendees. IG need be given only to classroom contacts of an index case in centers that do not provide care to children in diapers; c) in a common source outbreak, if a food handler is diagnosed with hepatitis A, IG should be administered to other food handlers in the same establishment. IG is usually not offered to patrons; it may be considered if i) the food handlers were involved in the preparations of foods that were not heated; ii) deficiencies in personal hygiene are noted or the food handler has had diarrhea; and iii) the IG can be given within 2 weeks after last exposure.

f. Investigation of contacts and source of infection: Search for missed cases and maintain surveillance of contacts in the patient's household or, in a common source outbreak, people exposed to the same risk.
g. Specific treatment: None.

3. Epidemic measures

a. Determine mode of transmission by epidemiologic investigation, whether person-to-person or by common vehicle, and identify the population exposed. Eliminate any common sources of infection.
b. Effective use of hepatitis A vaccine in community wide outbreak situations is associated with several factors, including identification of an appropriate target group for immunization, initiation of immunization early in the course of the outbreak and rapid achievement of high (approximately 70% or greater) first-dose vaccine coverage levels. Specific outbreak control measures should be tailored to the characteristics of hepatitis A epidemiology and of the existing hepatitis A immunization program, if any, in the community. Possible strategies include: a) in communities with ongoing programs of routine hepatitis A immunization of young children accelerate immunization of older children who have not previously received vaccine; b) In other outbreak settings, such as day care, hospitals, institutions and schools, routine use of hepatitis A vaccine is not believed to be warranted; and c) target immunization of groups or areas (e.g., age groups, risk groups, census tracts) determined to have the highest disease rates, based on local surveillance and epidemiologic data. However, these immunization programs may reduce disease incidence only in the group(s) targeted for immunization; the effectiveness of this strategy in terminating the outbreak in the entire community has not been determined. Evaluation of effectiveness of this strategy should be part of the outbreak response. Use of IG continues to be the central strategy of outbreak control

in these settings. However, if indicated as part of a routine immunization or community wide outbreak control program, concomitant hepatitis A immunization can be considered.

c. Make special efforts to improve sanitary and hygienic practices to eliminate fecal contamination of foods and water.
d. Focal outbreaks in institutions may warrant mass prophylaxis with IG and consideration of hepatitis A vaccine use.

4. International measures

None.